CLAIMS

1. A method of broadband access device for controlling a DHCP relay user to implement control and management of interaction between a DHCP client and a DHCP server, which comprises modifying protocol fields in all of DHCP messages interacted between a DHCP relay and the DHCP client and the DHCP server during initiation phase of the DHCP interaction at Application Layer of TCP/IP protocol, so that all of the DHCP messages interacted between the DHCP client and the DHCP server can pass through the DHCP relay.

2. The method of claim 1, wherein the modifying further comprises the following steps:

Step 1, after receiving any DHCP messages for request sent from the DHCP client to the DHCP server, the DHCP relay filling in fields associated with the DHCP relay in the DHCP message for request, so that any DHCP messages for response returned from the DHCP server to the DHCP client can pass through the DHCP relay;

Step 2, after receiving a first DHCP message for response returned from the DHCP server to the DHCP client, the DHCP relay extracting and storing DHCP server parameters of the fields associated with the DHCP server in the first DHCP message for response and then replacing the DHCP server parameters with DHCP relay parameters of the DHCP relay and sending the first DHCP message for response to the DHCP client;

Step 3, the relay processing any received subsequent DHCP messages for response returned from the DHCP server to the DHCP client, determining whether the subsequent DHCP messages for response contains the fields associated with the DHCP sever, if not, sending the subsequent DHCP messages for response to the DHCP client directly, otherwise, replacing the DHCP server parameters in the fields associated with the DHCP server with the DHCP relay parameters, and then sending the subsequent DHCP messages for response to the DHCP client so that any subsequent DHCP messages for request sent from the DHCP client to the DHCP server can pass through the DHCP relay;

Step 4, the DHCP relay processing the subsequent DHCP messages for request, determining whether the subsequent DHCP messages for request contains the fields associated with the DHCP sever, if no, sending the subsequent data packet for request

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to the DHCP server directly, otherwise, filling in the fields associated with the DHCP server with the DHCP server parameter stored in Step 2, and then sending the subsequent DHCP messages for request to the DHCP server so that any subsequent DHCP messages for request can pass validity checking by the DHCP server.

3. The method of claim 2, further comprising:

Step 5, the DHCP relay controlling and managing the interaction between the DHCP client and the DHCP server, varying network parameters of the DHCP client and detecting the DHCP client online according to requirements of user management strategy.

4. The method of claim 2, wherein in Step 1, for DHCPDISCOVER or DHCPREQUEST message sent from the DHCP client to the DHCP server, the DHCP relay fills in the fields associated with the DHCP relay with values so that DHCPOFFER, DHCPACK or DHCPNAK response from the DHCP server to the DHCP client can be sent to the DHCP relay.

5. The method of claim 4, wherein in Step 2, the DHCP relay receives DHCPOFFER, DHCPACK or DHCPNAK response, extracts and stores the DHCP server parameters in DHCPOFFER, DHCPACK or DHCPNAK response, and replaces the DHCP server parameters with the DHCP relay parameters so that a unicast request to the DHCP server can be still sent to the DHCP relay after the DHCP client has configured IP address.

6. The method of claim 4, wherein in Step 3, the DHCP relay receives the subsequent DHCP messages for response, and if the fields associated with the DHCP server are contained, the DHCP relay replaces the values of the fields associated with the DHCP server with its IP address.

7. The method of claim 6, wherein the subsequent DHCP messages for response is DHCPACK message in Dynamical Host Configuration Protocol.

8. The method of claim 6, wherein the subsequent DHCP messages for request is DHCPREQUEST message, DHCPINFORM message or DHCPRELEASE message in Dynamical Host Configuration Protocol.